

Application No.: 09/701,586

Inventor: Kock et al.

Reply to Notice of Non-Complaint Amendment of 25 September 2006

Docket No.: 49100

Amendments to the Claims:

1. (currently amended) An isolated and purified poly(ADP-ribose) polymerase (PARP) homolog comprising human PARP2 (SEQ ID NO: 2) or a functional equivalent thereof which is at least 85% homologous thereto, exhibits poly(ADP-ribose)-synthesizing activity, and has an amino acid sequence which
 - a) has a functional NAD⁺ binding domain comprising the sequence motif
 $PX_n(S/T)GX_3GKGIYFA$ (SEQ ID NO:11)
in which n is an integral value from 1 to 5, and the X radicals are, independently of one another, any amino acid;
and
 - b) lacks a zinc finger sequence motif of the **general** formula
 $CX_2CX_mHX_2C$ (SEQ ID NO:30)
in which m is an integral value of 28 or 30, and the X radicals are, independently of one another, any amino acid.
2. (currently amended) The PARP homolog as claimed in claim 1, wherein the functional NAD⁺ binding domain comprises **one of** the following **general** sequence motifs:
 $(S/T)XGLR(I/V)XPX_n(S/T)GX_3GKGIYFA$ (SEQ ID NO:12) or
 $LLWHG(S/T)X_2IL(S/T)XGLR(I/V)XPX_n(S/T)GX_3GKGIYFA(X)SKSAXY$ (SEQ ID NO:13)
in which n is an integral value from 1 to 5, and the X radicals are, independently of one another, any amino acid.
3. (currently amended) The PARP homolog as claimed in claim 1, **further** comprising at **least another one of the following** part-sequence motifs:
 $LX_9NX_2YX_2QLLX(D/E)X_{10/11}WGRVG$ (SEQ ID NO: 15),
 $AX_3FXKX_4KTXNXWX_5FX_3PXK$ (SEQ ID NO:16),

Application No.: 09/701,586

Inventor: Kock et al.

Reply to Notice of Non-Complaint Amendment of 25 September 2006

Docket No.: 49100

~~QXL(I/L)X₂IX₉MX₁₀PLGKLX₃QIX₆L (SEQ ID NO:17),~~

~~FYTXIPHXFGX₃PP (SEQ ID NO:18); and~~

~~KX₃LX₂LXDIEXAX₂L (SEQ ID NO:19),~~

in which the X radicals are, independently of one another, any amino acid.

4-32. (canceled)

33. (new) The PARP homolog as claimed in claim 1, wherein the functional NAD⁺ binding domain comprises the following sequence motif:

~~LLWHG(S/T)X₇IL(S/T)XGLR(I/V)XPX_n(S/T)GX₃GKGIYFAX₃SKSAXY (SEQ ID NO:13)~~

in which n is an integral value from 1 to 5, and

the X radicals are, independently of one another, any amino acid.

34. (new) The PARP homolog as claimed in claim 1 further comprising part-sequence motif

~~AX₃FXKX₄KTXNXWX₅FX₃PXK (SEQ ID NO:16)~~

in which the X radicals are, independently of one another, any amino acid.

35. (new) The PARP homolog as claimed in claim 1 further comprising part-sequence motif

~~XL(I/L)X₂IX₉MX₁₀PLGKLX₃QIX₆L (SEQ ID NO:17)~~

in which the X radicals are, independently of one another, any amino acid.

36. (new) The PARP homolog as claimed in claim 1 further comprising part-sequence motif

~~FYTXIPHXFGX₃PP (SEQ ID NO:18)~~

in which the X radicals are, independently of one another, any amino acid.

37. (new) The PARP homolog as claimed in claim 1 further comprising part-sequence motif

~~KX₃LX₂LXDIEXAX₂L (SEQ ID NO:19)~~

Application No.: 09/701,586

Inventor: Kock et al.

Reply to Notice of Non-Complaint Amendment of 25 September 2006

Docket No.: 49100

in which the X radicals are, independently of one another, any amino acid.

38. (new) An isolated poly(ADP-ribose) polymerase (PARP) homolog comprising human PARP2 (SEQ ID NO: 2) or a functional equivalent thereof which is at least 85% homologous thereto, exhibits poly(ADP-ribose)-synthesizing activity, and has an amino acid sequence which

- a) has a functional NAD⁺ binding domain comprising the sequence motif
 $PX_n(S/T)GX_3GKGIYFA$ (SEQ ID NO:11)
in which n is an integral value from 1 to 5, and the X radicals are, independently of one another, any amino acid;

and

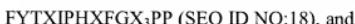
- b) lacks a zinc finger sequence motif of the formula
 $CX_2CX_mCWX_2C$ (SEQ ID NO:30)
in which m is an integral value of 28 or 30, and the X radicals are, independently of one another, any amino acid

further comprising a leucine zipper-like sequence motif:



wherein X radicals are, independently of one another, any amino acid.

39. (new) The PARP homolog as claimed in claim 38 further comprising at least one of the following part-sequence motifs:



in which the X radicals are, independently of one another, any amino acid.

Application No.: 09/701,586

Inventor: Kock et al.

Reply to Notice of Non-Complaint Amendment of 25 September 2006

Docket No.: 49100

40. (new) The PARP homolog as claimed in claim 38 further comprising part-sequence motifs:

LX₉NX₂YX₂QLLX(D/E)X_{10/11}WGRVG (SEQ ID NO: 15)

AX₃FXKX₄KTXNXWX₅FX₃PXK (SEQ ID NO:16),

QXL(I/L)X₂IX₉MX₁₀PLGKLX₃QIX₆L (SEQ ID NO:17),

FYTXIPHXFGX₃PP (SEQ ID NO:18), and

KX₃LX₂LXDIEXAX₂L (SEQ ID NO:19)

in which the X radicals are, independently of one another, any amino acid.

41. (new) The PARP homolog as claimed in claim 38 further comprising part-sequence motifs:

LX₉NX₂YX₂QLLX(D/E)X_{10/11}WGRVG (SEQ ID NO: 15)

AX₃FXKX₄KTXNXWX₅FX₃PXK (SEQ ID NO:16),

QXL(I/L)X₂IX₉MX₁₀PLGKLX₃QIX₆L (SEQ ID NO:17),

FYTXIPHXFGX₃PP (SEQ ID NO:18), and

KX₃LX₂LXDIEXAX₂L (SEQ ID NO:19)

in which the X radicals are, independently of one another, any amino acid, wherein

LX₉NX₂YX₂QLLX(D/E)X_{10/11}WGRVG

is closest to the N terminus.

42. (new) The PARP homolog as claimed in claim 1 further comprising part-sequence motifs:

LX₉NX₂YX₂QLLX(D/E)X_{10/11}WGRVG (SEQ ID NO: 15)

AX₃FXKX₄KTXNXWX₅FX₃PXK (SEQ ID NO:16),

QXL(I/L)X₂IX₉MX₁₀PLGKLX₃QIX₆L (SEQ ID NO:17),

FYTXIPHXFGX₃PP (SEQ ID NO:18), and

KX₃LX₂LXDIEXAX₂L (SEQ ID NO:19)

in which the X radicals are, independently of one another, any amino acid.

Application No.: 09/701,586

Inventor: Kock et al.

Reply to Notice of Non-Complaint Amendment of 25 September 2006

Docket No.: 49100

43. (new) The PARP homolog as claimed in claim 1 further comprising part-sequence motifs:

LX₉NX₂YX₂QLLX(D/E)X_{10/11}WGRVG (SEQ ID NO: 15)

AX₃FXKX₄KTXNXWX₅FX₃PXK (SEQ ID NO:16),

QXL(I/L)X₂IX₉MX₁₀PLGKLX₃QIX₆L (SEQ ID NO:17),

FYTXIPHXFGX₃PP (SEQ ID NO:18), and

KX₃LX₂LXDIEXAX₂L (SEQ ID NO:19)

in which the X radicals are, independently of one another, any amino acid, wherein

LX₉NX₂YX₂QLLX(D/E)X_{10/11}WGRVG

is closest to the N terminus.

44. (new) The PARP homolog as claimed in claim 1 further comprising at least one of the following:

GX₃LXVALG,

GX₂SX₄GX₃PX_aLXGX₂V, and

E(Y/F)X₂YXYX₃QXYLL

in which a is 7 to 9 and

X is any amino acid.

45. (new) The PARP homolog as claimed in claim 1 further comprising

GX₃LXEVALG,

GX₂SX₄GX₃PX_aLXGX₂V, and

E(Y/F)X₂YX₃QX₄YLL

in which a is 7 to 9 and

X is any amino acid.

46. (new) The PARP homolog as claimed in claim 1 further comprising

Application No.: 09/701,586

Inventor: Kock et al.

Reply to Notice of Non-Complaint Amendment of 25 September 2006

Docket No.: 49100

GX₃LXEVALG,
GX₂SX₄GX₃PX_aLXGX₂V, and
E(Y/F)X₂YX₃QX₄YLL

in which a is 7 to 9 and

X is any amino acid, wherein

E(Y/F)X₂YX₃QX₄YLL

is closest to the C terminus.

47. (new) An isolated poly(ADP-ribose) polymerase (PARP) homolog comprising human PARP2 (SEQ ID NO: 2) or a functional equivalent thereof which is at least 85% homologous thereto, exhibits poly(ADP-ribose)-synthesizing activity, and has an amino acid sequence which
 - a) has a functional NAD⁺ binding domain comprising the sequence motif PX_n(S/T)GX₃GKGIYFA (SEQ ID NO:11)
in which n is an integral value from 1 to 5, and the X radicals are, independently of one another, any amino acid;
and
 - b) lacks a zinc finger sequence.
48. (new) The PARP homolog as claimed in claim 47 wherein said PARP lacks a zinc finger sequence motif of the formula
CX₂CX_mHX₂C (SEQ ID NO:30)
in which m is an integral value of 28 or 30, and
the X radicals are, independently of one another, any amino acid.
49. (new) The PARP homolog as claimed in claim 47 wherein the functional NAD⁺ binding domain comprises the following sequence motif:
(S/T)XGLR(I/V)XPX_n(S/T)GX₃GKGIYFA (SEQ ID NO:12)

Application No.: 09/701,586

Inventor: Kock et al.

Reply to Notice of Non-Complaint Amendment of 25 September 2006

Docket No.: 49100

in which n is an integral value from 1 to 5, and
the X radicals are, independently of one another, any amino acid.

50. (new) The PARP homolog as claimed in claim 47 wherein the functional NAD⁺ binding domain comprises the following sequence motif:

LLWHG(S/T)X₇IL(S/T)XGLR(I/V)XPX_n(S/T)GX₃GKGIYFAX₃SKSAXY (SEQ ID NO:13)

in which n is an integral value from 1 to 5, and
the X radicals are, independently of one another, any amino acid.

51. (new) The PARP homolog as claimed in claim 47 further comprising a leucine zipper-like sequence:

(L/V)X₆LX₆LX₆L

wherein X radicals are, independently of one another, any amino acid.

52. (new) The PARP homolog as claimed in claim 51 further comprising at least one of the following part-sequence motifs:

LX₉NX₂YX₂QLLX(D/E)X_{10/11}WGRVG (SEQ ID NO: 15),

AX₃FXKX₄KTXNXWX₅FX₃PXK (SEQ ID NO:16),

QXL(I/L)X₂IX₉MX₁₀PLGKLX₃QIX₆L (SEQ ID NO:17),

FYTXIPHFGX₃PP (SEQ ID NO:18), and

KX₃LX₂LXDIEXAX₂L (SEQ ID NO:19)

in which the X radicals are, independently of one another, any amino acid.

53. (new) The PARP homolog as claimed in claim 51 further comprising:

LX₉NX₂YX₂QLLX(D/E)X_{10/11}WGRVG (SEQ ID NO: 15),

AX₃FXKX₄KTXNXWX₅FX₃PXK (SEQ ID NO:16),

QXL(I/L)X₂IX₉MX₁₀PLGKLX₃QIX₆L (SEQ ID NO:17),

Application No.: 09/701,586

Inventor: Kock et al.

Reply to Notice of Non-Complaint Amendment of 25 September 2006

Docket No.: 49100

FYTXIPHXXFGX₃PP (SEQ ID NO:18), and

KX₃LX₂LXDIEXAX₂L (SEQ ID NO:19)

in which the X radicals are, independently of one another, any amino acid.

54. (new) The PARP homolog as claimed in claim 51 further comprising:

LX₉NX₂YX₂QLLX(D/E)X_{10/11}WGRVG (SEQ ID NO: 15),

AX₃FXKX₄KTXNXWX₅FX₃PXK (SEQ ID NO:16),

QXL(I/L)X₂IX₉MX₁₀PLGKLX₃QIX₆L (SEQ ID NO:17),

FYTXIPHXXFGX₃PP (SEQ ID NO:18), and

KX₃LX₂LXDIEXAX₂L (SEQ ID NO:19)

in which the X radicals are, independently of one another, any amino acid, wherein

LX₉NX₂YX₂QLLX(D/E)X_{10/11}WGRVG

is closest to the N terminus.

55. (new) The PARP homolog as claimed in claim 47 further comprising at least one of the following:

GX₃LXVALG,

GX₂SX₄GX₃PX_aLXGX₂V, and

E(Y/F)X₂YX₃QX₄YLL

in which a is 7 to 9 and

X is any amino acid.

56. (new) The PARP homolog as claimed in claim 47 further comprising

GX₃LXEVALG,

GX₂SX₄GX₃PX_aLXGX₂V, and

E(Y/F)X₂YX₃QX₄YLL

in which a is 7 to 9 and

X is any amino acid.

Application No.: 09/701,586
Inventor: Kock et al.
Reply to Notice of Non-Complaint Amendment of 25 September 2006
Docket No.: 49100

57. (new) The PARP homolog as claimed in claim 47 further comprising

GX₃LXEVALG,
GX₂SX₄GX₃PX_aLXGX₂V, and
E(Y/F)X₂YX₃QX₄YLL

in which a is 7 to 9 and

X is any amino acid, wherein

E(Y/F)X₂YX₃QX₄YLL

is closest to the C terminus.

58. (new) The PARP homolog as claimed in claim 51 further comprising at least one of the following:

GX₃LXVALG,
GX₂SX₄GX₃PX_aLXGX₂V, and
E(Y/F)X₂YX₃QX₄YLL

in which a is 7 to 9 and

X is any amino acid.

59. (new) The PARP homolog as claimed in claim 51 further comprising

GX₃LXEVALG,
GX₂SX₄GX₃PX_aLXGX₂V, and
E(Y/F)X₂YX₃QX₄YLL

in which a is 7 to 9 and

X is any amino acid.

60. (new) The PARP homolog as claimed in claim 51 further comprising

GX₃LXEVALG,
GX₂SX₄GX₃PX_aLXGX₂V, and

Application No.: 09/701,586

Inventor: Kock et al.

Reply to Notice of Non-Complaint Amendment of 25 September 2006

Docket No.: 49100

E(Y/F)X₂YX₃QX₄YLL

in which a is 7 to 9 and

X is any amino acid, wherein

E(Y/F)X₂YX₃QX₄YLL

is closest to the C terminus.